The Fork & Blade

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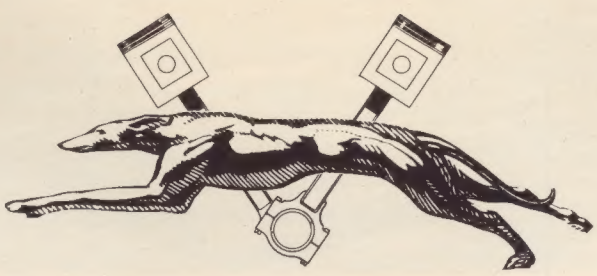
THE *Precision-Built* LINCOLN



The Fork & Blade
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P.O. BOX 189
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THE LINCOLN OWNERS' CLUB, INC. is a non-profit membership corporation chartered in the state of Connecticut. The purpose of the club is to further the restoration and preservation of Lincoln Motorcars produced through 1940 with the exception of the Zephyr and Continental. By providing a channel of communication, the club strives to bring together in good fellowship all who own or admire these fine examples of automotive craftmanship.

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RAYMOND H. DIETRICH

1894 - 1980

Ray Dietrich, one of America's most gifted automotive designers, died March 19, 1980.

Born in 1894, his career began with Brewster & Co. in 1913 as a designing and drafting apprentice. It was at Brewster that Dietrich met Thomas L. Hibbard and in 1920 they joined forces to create LeBaron Carrossiers, an independent automotive designing house. By 1923, LeBaron had merged with the Bridgeport Body Co. to become LeBaron Inc. During this era, Tom Hibbard was to leave LeBaron to go to Europe, with Dietrich remaining to run the Company with the help of Ralph Roberts.

Several custom designs were done on the Lincoln chassis which caught the eye of Edsel Ford. In 1925, Ford suggested to the Murray Corporation, a Detroit body builder, that they acquire a custom coach building house and sponsor its move to Detroit. An offer was made to LeBaron, but they were unwilling to leave New York. However, Dietrich took the offer to move to Detroit and set up a coach building shop under the name of Dietrich Inc. It was here, with the help of Edsel Ford, that Dietrich was given more artistic freedom in the creation of the freeform designs that have graced many of the fine Classics that we know and remember today, especially the Lincoln.

Ray Dietrich will be missed by all of us.

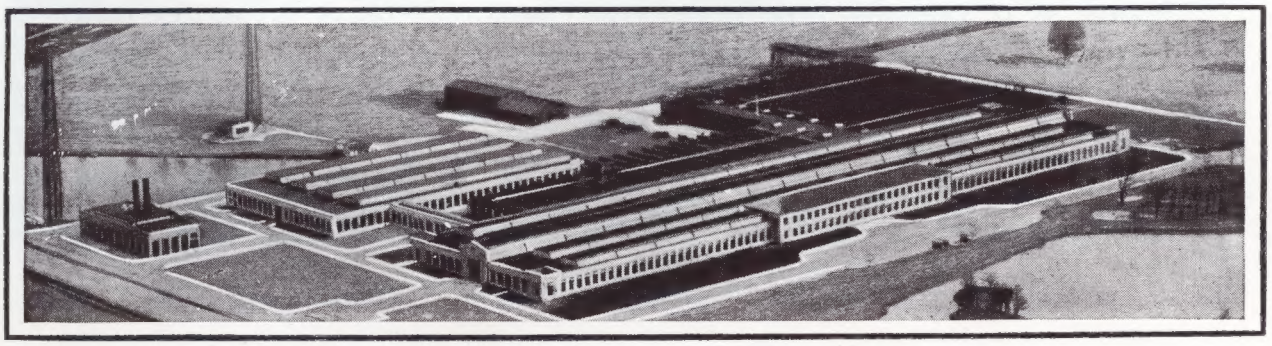
THE *Precision-Built* LINCOLN

"The Lincoln must be as nearly perfect a motor car as it is possible to produce."

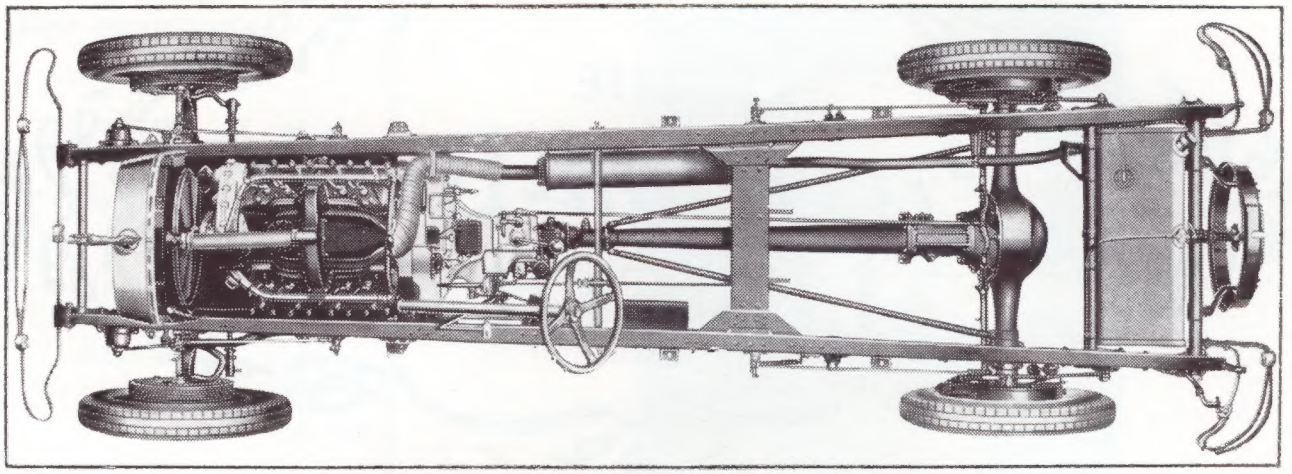
THAT is the Lincoln ideal, expressed in the body of instructions issued to all engineering and production divisions on the very day the Lincoln became a product of the Ford organization. To comprehend the full significance of this ideal, remember that the Lincoln is not built to meet any existing standards. *Our aim is to build the Lincoln so well that supremacy will be an accepted, acknowledged fact.*

The Lincoln is backed by the facilities and resources necessary to a realization of this high ideal. One need only point to the manufacturing pre-eminence of the Ford Motor Company—its equipment, engineering facilities, trained personnel, vast resources—and recall that this tremendous organization is devoted to the task of carrying the Lincoln as close to perfection as is humanly possible.

The Ford engineering laboratory, housed in a mammoth and imposing building at Dearborn, Michigan, is conceded to be



The Engineering Laboratory of the Ford Motor Company at Dearborn, Michigan.



The precision-built Lincoln chassis.

without rival in the automotive industry. Here are grouped engineering and precision experts who work with every facility known to science. More than that, they work with the confident knowledge that if they can achieve any fundamental improvement nothing stands in the way of its incorporation in the Lincoln car.

With the resources of the Ford organization at its disposal, with an ideal that recognizes only that highest standard, perfection—it is not to be wondered that the Lincoln cannot be measured by any established limits of refinement and performance. Indeed, the Lincoln car is a triumph of automotive design and mechanical precision.

This book has been prepared in response to an almost universally expressed interest in the finer mechanical construction and more exacting engineering principles embodied in the Lincoln. It is in no sense a technical treatise, nor is it intended to convey more than a general impression of Lincoln manufacture. Only after an extended tour of the Lincoln plant, observing every manufacturing operation in detail, is it possible to have any comprehensive grasp of the extraordinary precision with which the Lincoln car is built.

LINCOLN PRECISION

THE twentieth century has inaugurated a new chapter in the history of fine craftsmanship: individual skill and ingenuity have been supplemented by the scientific accuracy of precision tools.

When the Ford Motor Company acquired the Lincoln, and announced as its ideal the creation and development of "as nearly perfect a motor car as it is possible to produce," it was at once evident that the commonly accepted standards of accuracy could not achieve this end. The element of human error must be eliminated by the use of the finest precision tools and instruments.

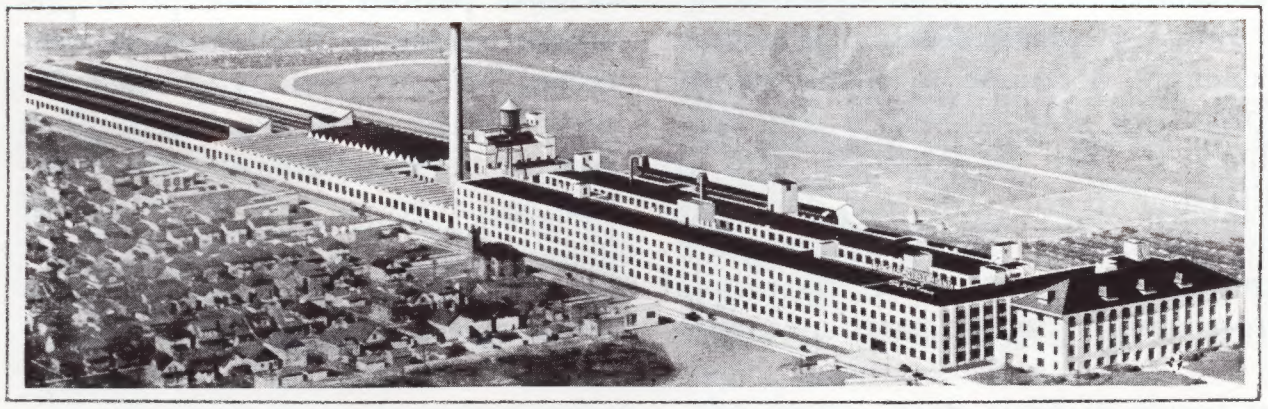
Every operation in the Lincoln plant is held to limits of accuracy commonly believed impossible. The moving parts of the engine are fitted with the utmost precision; in its construction the finest steels are milled and machined to limits hitherto looked upon as practically unattainable.

Lincoln workmen are, in a sense, supercraftsmen. For they work with accurate gages, many of which are built in as integral parts of special machinery; processes formerly believed impossible are now actually performed by the aid of intricate scientific devices; results can be measured by a specified standard which never varies.

There is a well-ordered sequence of operations in the building of a Lincoln which obviates all lost motion and unnecessary endeavor. Production moves with steady certainty throughout the manufacturing course. Is it too much to say that the Lincoln car, when finally assembled as a unit, comes inconceivably close to being "a whole made up of perfect parts"?

LINCOLN'S PERSONNEL OF EXPERT WORKMEN

Endless search and tireless effort were necessary in order to bring the Lincoln car up to the standards set for it. The story of Lincoln adherence to Johansson standards of accuracy illustrates this:

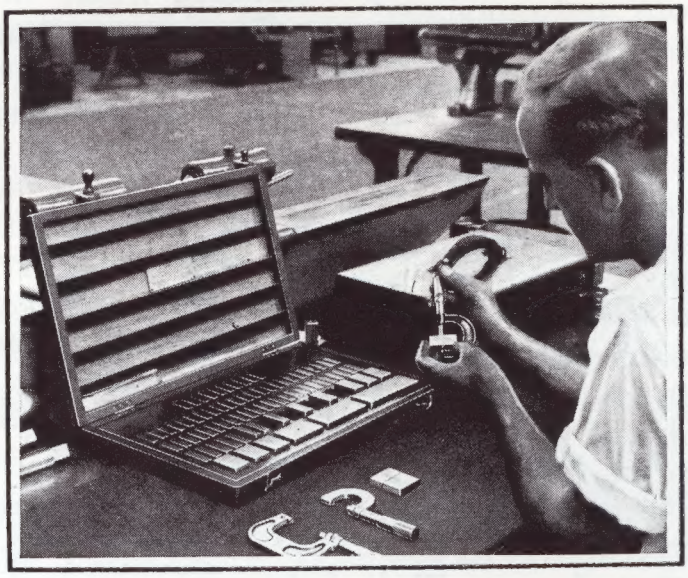


Plant of the Lincoln Motor Company.

The Ford Motor Company, in its endeavor to attain the finest precision instruments that could be acquired, negotiated with the world's foremost precision expert, C. E. Johansson of Sweden—whose master gage blocks are considered the standard of measurement for the United States Bureau of Standards at Washington, the International Bureau of Standards at Paris, and the National Physical Laboratory at London.

Not only were arrangements made with Mr. Johansson for the production and use of his blocks, *but he himself was brought to America as a member of the Ford organization.* He is now at the Dearborn laboratories, with every facility for carrying still further his remarkable researches.

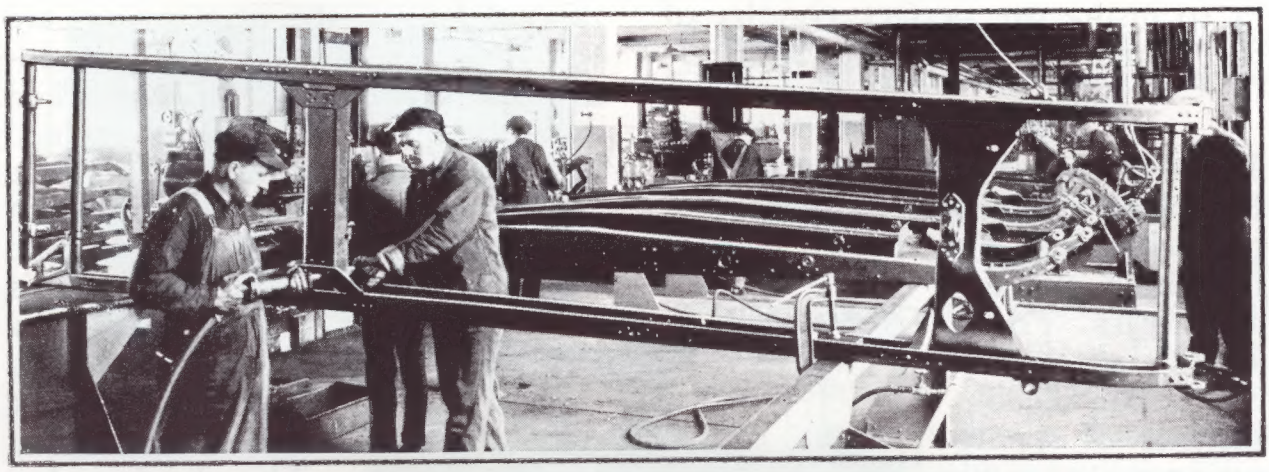
Lincoln manufacturing is greatly benefited, of course, by the use of the Johansson blocks which are produced in Ford laboratories. But in addition to this, the very methods by which these gages are made are employed in producing the tools from which Lincoln parts are made.



Checking micrometer gages with Johansson blocks.

The entire manufacturing personnel of the Lincoln factory is selected for adaptability to work with the most delicate of fine tools and instruments. Each workman is a critical inspector of preceding operations, as well as a master at the special work he performs.

As Lincoln parts progress from stage to stage, they are subject to constant examination. Johansson gages as well as hundreds of other delicate precision instruments and gages are in constant use, checking both parts and the machines that make them. Every precaution is taken that these gages may never vary from absolute accuracy. Depending upon the required accuracy of the part, all gages are critically inspected at definite periods by a corps of precision experts. Then they are corrected, adjusted and sealed before being returned to the workmen. Thus Lincoln builders carry scientific accuracy to a degree which the makers of fine watches might well envy; yet Lincoln construction and performance can be achieved in no other way.



Riveting steel reinforcing plates to the inside of the Lincoln frame.

FUNDAMENTAL PRINCIPLES OF LINCOLN DESIGN

LINCOLN engineers have always recognized that fundamental principle of motor car design—*well-balanced excellence*. And the Lincoln is, indeed, an outstanding example of well-balanced motor car performance. It has speed in abundant measure—and the stamina to back it up. It has brilliant acceleration with the strength to stand the stresses of *sustained* power and speed. It is smooth, quiet, highly responsive—and so durable that its maximum length of service is unknown.

THE FRAME

As an example of the balanced excellence of Lincoln design, let us consider the construction of the frame.

In planning the frame, Lincoln engineers were obliged to take into consideration many factors peculiar to the car itself. The Lincoln is frequently driven at high speed over long stretches of broken highway. Therefore, in order to meet such extraordinary performance demands, the Lincoln frame must be of the most sturdy construction, must be made of the most suitable steel procurable.

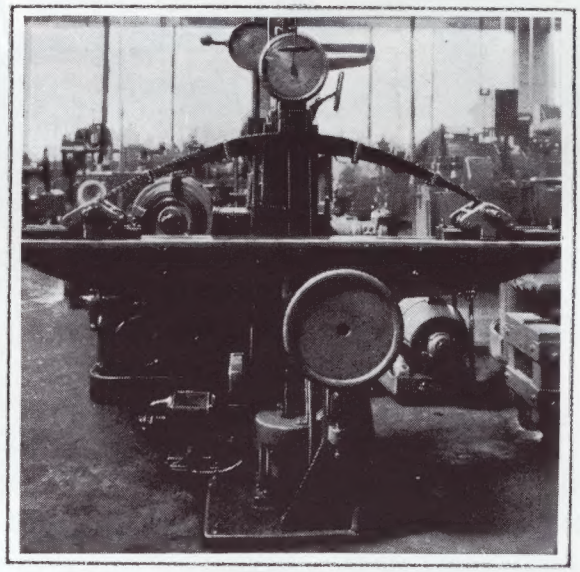
The side members of the frame are of special heavy steel, 7½ inches deep—and these are held together in perfect alignment by three seamless steel tubes and two heavy pressed-steel cross members. In addition, exceptionally heavy steel reinforcing plates are riveted to the inside of the frame at certain points, thus providing additional strength.

All rivet holes are drilled (not punched). Each rivet is heated by electricity and driven home by pneumatic hammers. In the final test of the frame, each rivet is tested for

fit to insure the perfect rigidity of the frame in its every member.

THE SPRINGS

The remarkable riding ease of the Lincoln is apparent at all speeds and over all roads. The unusual manner in which the car absorbs road shocks is largely due to the Lincoln method of spring suspension, another point of the Lincoln's well balanced excellence.



Testing Lincoln springs for uniform tension and proper load carrying.

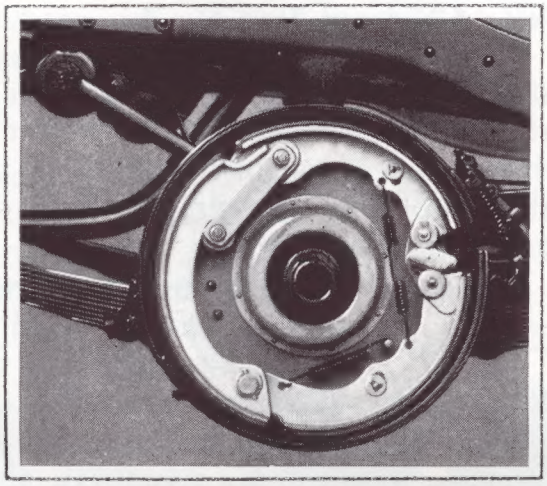
Because of the Torque Tube, the rear springs do not take any of the driving thrust. As a result of this feature it is not necessary to fasten them rigidly to the frame. Instead, both ends are flexibly shackled by means of large shackle bolts that move in hard polished bronze bushings pressed into the frame and spring ends. A bevel washer and sealing ring on each end of the shackle bolts seal the bearing surface against grit, dirt and water. The shackle bolts not only are the largest used on any passenger car, but are most carefully made. Their diameter of one inch is held to one-thousandth of an inch for accuracy.

Both front and rear springs are constructed of the finest silico manganese steel, scientifically heat-treated. Front springs are 39″ long by 2¼″ wide, and contain 14 tapered leaves; the rear springs are 60″ long by 2½″ wide. Each individual spring is carefully checked and gaged for accuracy by trained inspectors and is subjected to tests that conclusively prove its strength and flexibility. The flexing action of the springs is hydraulically controlled by special shock absorbing units. The hydraulic principle in controlling heavy shocks has been proved best by many years of use.

THE TORQUE TUBE DRIVE

A source of constant satisfaction to Lincoln owners is the ease with which the car slips from a standstill to high speed. The driving impulse is hardly distinguishable; there is no swerving or surging of the body.

This characteristic of Lincoln performance is largely attributable to the use of the Torque Tube Drive—an engineering principle first applied to automobile construction more than twenty years ago by the Ford Motor Company. The power, or driving thrust, of the rear wheels is transmitted to a point well forward on the frame by a heavy steel tube that surrounds the drive shaft. Thus the rear of the car is virtually *pulled* over the road, for the propelling force is applied near the front.



Lincoln 6-brake system—4 internal expanding brakes—2 external contracting brakes (on rear wheels).

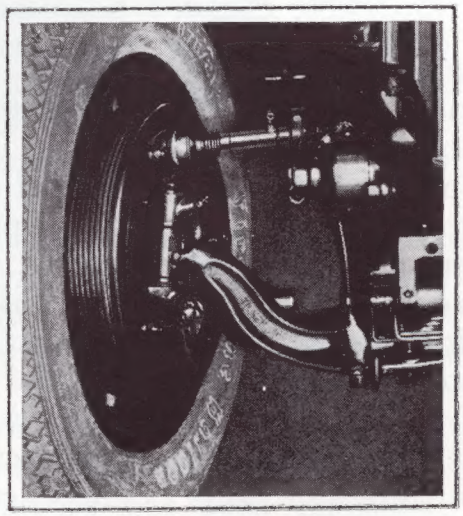
The Torque Tube completely incloses the propeller shaft, connecting the rear axle with a ball and socket joint at the rear end of the transmission. In this way, the ball and socket joint takes all of the car drive, and completely relieves the rear springs of all driving reaction and thrust. Brace rods, which are attached to the Torque Tube and near the rear spring seats, serve to hold the rear wheels in alignment.

The advantages of the Torque Tube cannot be overestimated. Where this principle is not used, the driving and braking thrust is usually transmitted to the chassis through the rear springs, which makes it necessary to fasten the front ends of the rear springs directly to the side frame members—thus interfering with their chief function, that of carrying the load. Furthermore, this tends toward instability of the rear wheels when pulling through sand or mud. Where power is actually applied near the front of the car by a Torque Tube, this is impossible. It is certain that power cannot be applied so easily and smoothly by any other construction.

SIX-BRAKE CONTROL

Contributing further to roadability, safety and ease of control is the Lincoln system of braking. This comprises mechanical four-wheel brakes of Bendix design with special Lincoln refinement providing braking efficiency far in excess of all ordinary requirements.

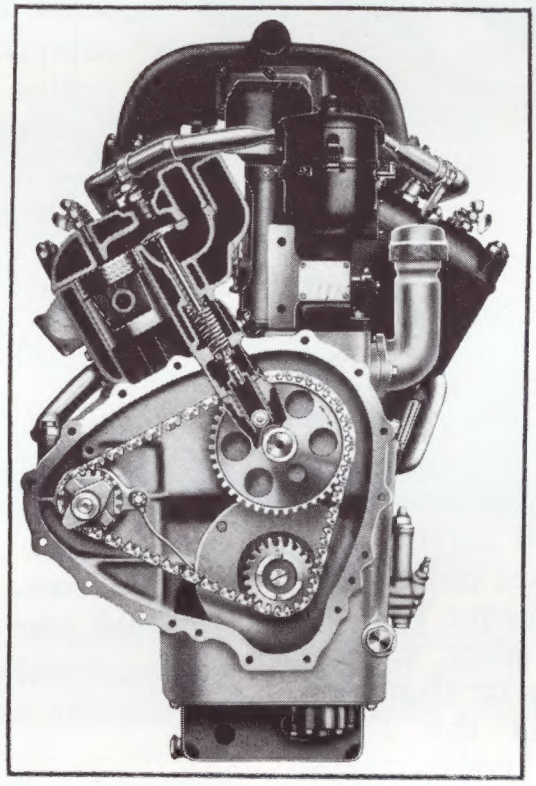
The service brakes are of the internal self-energizing type, and operate on all four wheels by means of a foot pedal. The hand or emergency brake operates independently through separate linkage. It contracts the outer brake bands against the rear wheel drums, and, at the same time, operates the internal rear shoes by expansion—giving equalized pressure under all conditions—*and six-brake control.*



Stanch and simple front-brake construction.

PRINCIPLES OF ENGINE DESIGN

THE V-type eight-cylinder engine possesses certain fundamental advantages by virtue of its design alone. In the first place, it is more compact and permits the use of a more powerful engine without unduly lengthening the car or sacrificing body room. Moreover, the shorter distance from the carburetor to all cylinders insures an even distribution of gasoline vapors, and consequently greater engine efficiency and smoothness. Again, this compact construction makes possible a more efficient cooling system, and a shorter, more rugged crankshaft. These basic advantages of the V-type eight have been utilized to the utmost in the Lincoln.



Engine front end showing vibration dampener.

But in addition, the Lincoln embodies numerous individual improvements that contribute to its well-balanced excellence and remarkable performance. There is, for instance, greater space between the 60° Lincoln engine and frame than in the usual V-type design. This permits mounting such units as the generator and water pump beside the engine, affording greater accessibility and allowing the engine to rest lower in the frame—thus contributing to the ability of the Lincoln to "hug the road" at any speed.

The principle of unrhythmic firing is incorporated in the Lincoln by timing explosions to occur at irregular intervals, thus avoiding any regularity of power impulses. This is accomplished by setting two blocks of cylinders at an included angle of 60° rather than the conventional 90°, thus permitting irregular firing. This is significant in explaining the car's smooth operation. The principle can best be explained by pointing to the generally known fact that troops marching in regular step cannot cross a bridge without the danger of injuring it. On the other hand, by breaking step they can cross with little likelihood of danger.

In the Lincoln engine any tendency toward vibration is further reduced by a vibration dampener. This is attached to the front end of the crankshaft by means of a frictional disc and has a steadying effect upon the shaft by eliminating

"whipping action" caused by the power impulses.

THE COOLING SYSTEM

Every unit of the Lincoln cooling system is designed to insure uniform motor temperature under all operating conditions.

The cooling system also serves as a heating system when the engine is first started—quickly bringing it to the most efficient operating temperature. This is accomplished by thermostatically-controlled radiator shutters that operate according to the needs of the engine. The shutters stay closed until the engine heats to the proper point, when they open to admit just the right amount of air. Thus in the coldest weather, the engine quickly reaches the most efficient operating temperature—with the very minimum of choking. This is an important advantage, as raw gasoline on cold cylinder walls drains into the crankcase when a choke is used freely.

Testing piston diameter to insure perfect cylinder fit.

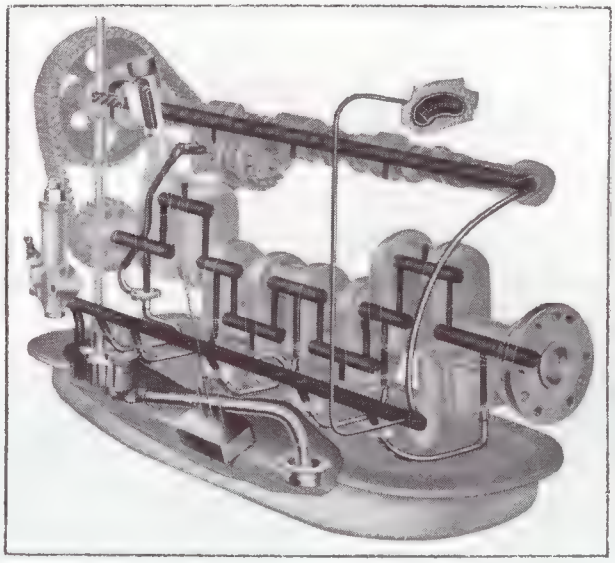
A notable convenience of the Lincoln cooling system is the condenser tank, which catches all liquid and vapor escaping from the radiator—conveying it back again. This feature, while a practical convenience at all times, is especially valuable in cold weather—when expensive anti-freezing solutions are used.

THE FUEL SYSTEM

As the mixture of gas vapor and air passes from the carburetor to the combustion chambers, it is heated to the proper temperature by the exhaust gases—insuring efficient operation almost the instant the engine starts. A water jacket in contact with the intake manifold controls the heat of the exhaust gases as the engine reaches a higher temperature. This feature is especially valuable in maintaining Lincoln efficiency. It prevents the excessive heating and over expansion of the gas mixture which causes a great reduction in its explosive energy—with resultant loss of power.

Since the carburetor is located between the two cylinder blocks, the mixture has an unusually short distance to travel through the manifold. This assures an even distribution of gas for all cylinders, as well as uniform temperature. The carburetor has been especially developed to vaporize low-grade fuels.

THE LUBRICATION SYSTEM

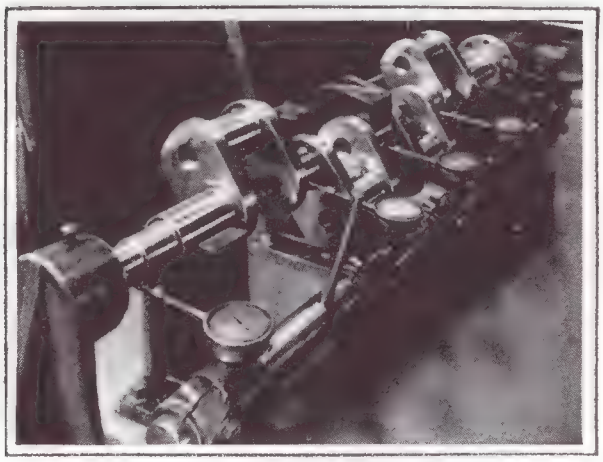


Lincoln force-feed lubrication system.

The Lincoln system of engine lubrication is as perfect as modern engineering has devised.

It is simple and positive, employing a gear type oil pump inclosed in the front end of the oil reservoir, and driven from the camshaft by a distributor shaft through spiral gears. The oil upon leaving the main bearings, connecting rod bearings, cylinders, valve lifters, camshaft and other parts, returns to the oil reservoir, after first passing through a fine mesh screen. An oil level indicator on the left side of the engine, visible at night, indicates the amount of oil in the reservoir at all times. An oil pressure regulator on the left side of the engine, connecting with the main oil manifold, serves to regulate the pressure on the oil in circulation.

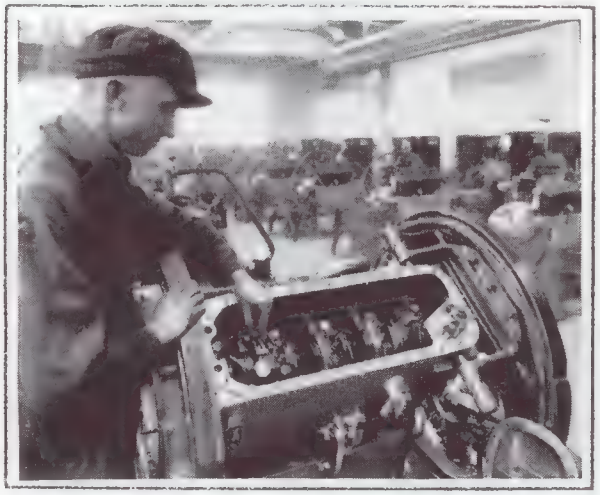
The efficiency of the system is due to a comprehensive use of the force-feed principle and to the inherent precision of Lincoln engine parts. A definite clearance is originally provided between all moving parts for thorough lubrication, and in spite of the minute accuracy with which all engine parts are fitted, there is never any tightness—not even in the initial assembly. During the first few miles of Lincoln service the lubrication is as thorough as after ten or twenty thousand miles of driving. That is one reason why a new Lincoln may be driven at high speed without injury.



Testing main crankshaft bearings for alignment.

Showing battery of multiple spindle drills in the crankcase department.

NOTABLE FEATURES OF LINCOLN CONSTRUCTION



Testing Lincoln crank pin bearings for perfect fit.

THE CRANKSHAFT

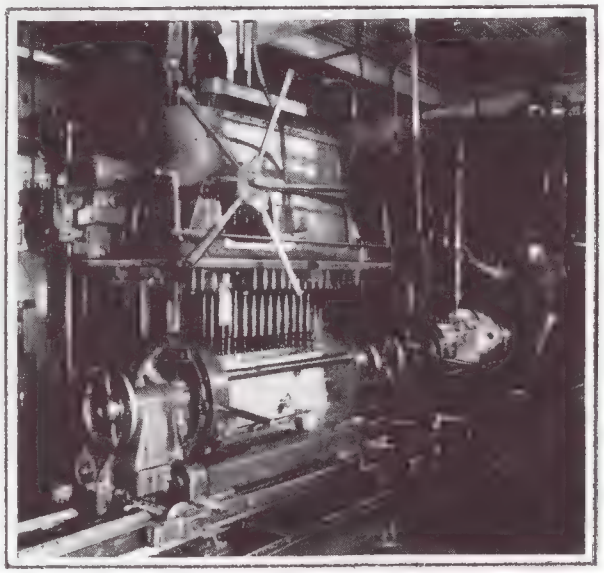
THE Lincoln crankshaft is made of drop-forged steel completely machined on all surfaces, and balanced with counterweights to relieve bearing load. All bearing surfaces are ground and polished to a mirrorlike finish. The crankshaft is supported by five main bearings, two inches in diameter. Thus a bearing is located between each crankshaft throw, and every part of the shaft that is subjected to power impulse is rigidly supported on each side by a large bearing surface. During the entire operation of grinding the bearing surfaces of the crankshaft, the exact measurements are shown by automatic gages—these being built in as integral parts of the grinding machine. Thus the main bearings and connecting rod bearings can be maintained to an exact size within the established limit of one-thousandth of an inch. When the engine is assembled, so perfect is the fitting of these various bearings that one can spin the crankshaft with the finger and thumb.

THE CAMSHAFT

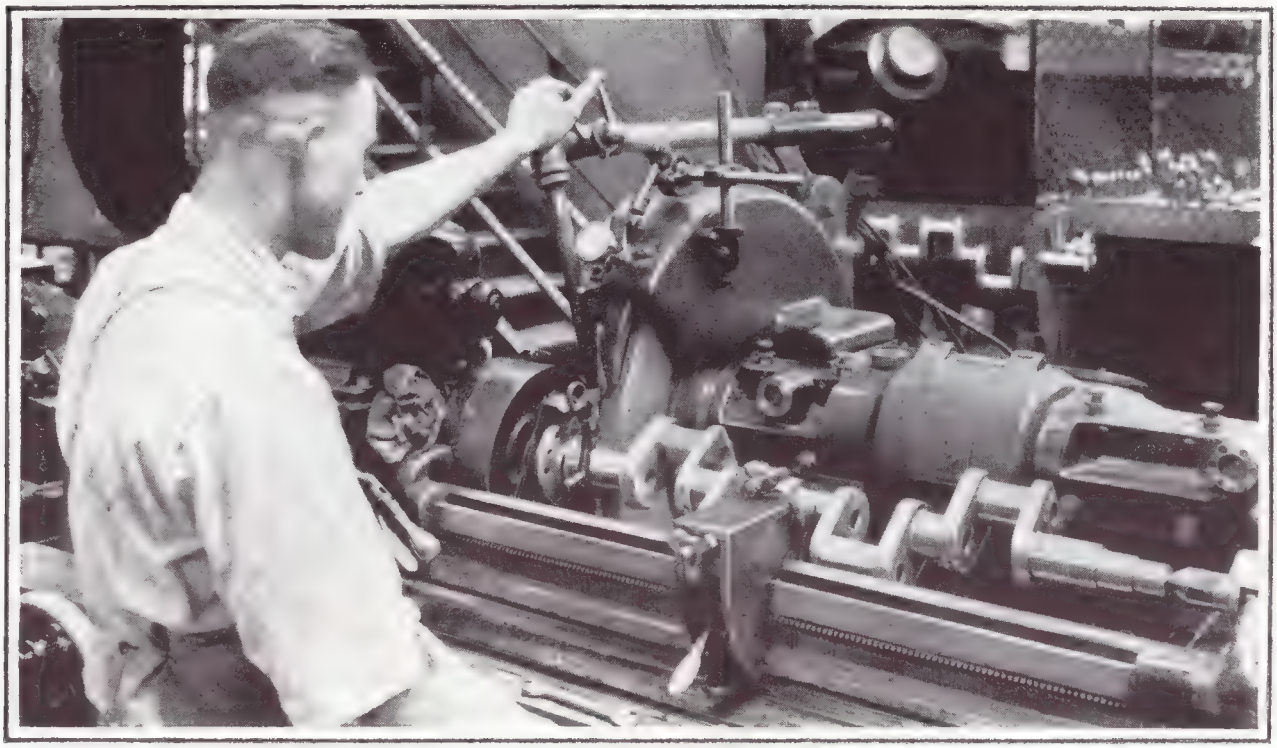
The camshaft, operating 16 valves, is fabricated from a solid bar of steel which is drilled to provide an oil duct for positive lubrication supply under pressure to each bearing. Cams and bearings are hardened, accurately ground to exact dimensions, and polished to remove tool marks.

ADJOINING GEARS

All intermeshing gears are individually adapted to each other by a special process which insures smooth action and quick operation. They are tested in a sound-proof room. They are operated at all speeds while testers listen intently. The slightest undesirable noise is detected at once.



Drilling Lincoln crankcase with multiple spindle drill to insure absolute and uniform accuracy.



Grinding the Lincoln crankshaft—an extremely precise operation in which each main bearing is ground to one-half of one-thousandth of an inch.

LIGHTWEIGHT PARTS

In large measure, the noteworthy smoothness and efficiency of the Lincoln engine result from the fact that every reciprocating part is perfectly balanced and made as light as its particular task will permit. The connecting rods are made of steel forgings, entirely machined. The pistons are made of alloy that is specially heat-treated, and they are unusually light for an engine of such size. The eight connecting rods and pistons are carefully matched for weight—thus assuring absolute balance.

INSPECTIONS

After a Lincoln engine is completely assembled, it must pass further critical examination—both on the block test and on the road—before it is permitted to leave the factory.

In the block test, each engine runs for several hours under its own power, carrying a 20-horsepower load—equal to an engine speed equivalent to 30 miles an hour. This operation is constantly watched by trained inspectors, every detail of the performance being checked. So critical is the inspection that even the most trivial irregularity would be detected and cause an engine to be sent back for adjustment and, if necessary, another five-hour block test. After every successful block test, the engine is taken down and all bearings checked to insure just sufficient clearance to permit perfect lubrication.

BODY DESIGN AND CONSTRUCTION

ALL Lincoln body types originate from custom designs created by America's foremost body builders—Brunn, Judkins, Dietrich, LeBaron, Locke, Holbrook, Willoughby and others. The most favored of these custom-designed bodies later become available as Standard Lincoln body types, and are produced under the supervision of the Lincoln Motor Company.

Lincoln accuracy is also maintained in body construction.

No two body types are put into production simultaneously. Each body is individual in treatment and is not identical in the public mind with a particular period or date. There are no periodic or yearly Lincoln models.

The purchaser may choose from many different types, and is afforded a wide latitude in the selection of color and upholstery combinations.

BUILDING LINCOLN BODIES

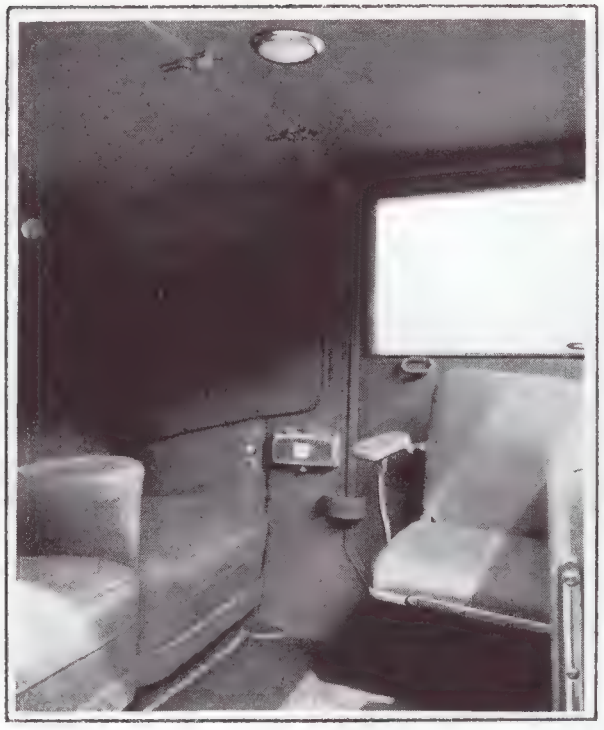
Accuracy in Lincoln body construction is as imperative as in chassis building.

The entire framework of a Lincoln body is of the finest grade selected hard woods. The slightest blemish or imperfection is sufficient to cause rejection by Lincoln inspectors at the point of shipment. Even after it reaches the factory, all wood must pass rigid inspections before it is put into production. So exacting are the standards that out of 500,000 feet of the finest lumber available, an average of only 120,000 feet reaches the Lincoln body plant. Every piece of this wood is kiln-dried slowly and carefully to remove the moisture without affecting the natural perfection of the texture.

Over the framework are applied panels of heavy sheet aluminum, hand-tooled to shape. The window and door frames are aluminum castings. The wheel housings are reinforced with a rigid, dust-proof, bronze casting to which the fenders are attached. The body is especially channeled for wiring, protecting the doors and permitting the upholstery to lie flush over them. All doors fit with positive accuracy—top, bottom, and sides.

The general upholstery work rivals that of the very finest furniture. Closed body upholstery material is broadcloth, mohair or cord—the finest the markets of the world afford.

The Lincoln body is proofed throughout against the most inclement weather. The weather-stripping must resist an air force test far more severe than is ever en-



Interior of cabriolet by Brunn.

countered in driving. All levers through the floorboard are completely surrounded with felt and covered with aluminum to exclude uncomfortable draughts.

BODY FINISH

Pyroxylin lacquer was adopted as standard for all Lincoln cars after three years of comparative tests with varnish finishes. These tests, which included every known means of determining durability, have convincingly proved that pyroxylin lacquer is the one available body finish which will last the life of the car.

To some it is difficult to believe that pyroxylin can be made that will withstand Lincoln tests. There are Lincoln tests for elasticity and crystallization; for permanence of color, shade and wear. Hundreds of experimental samples, applied on small sheets of aluminum, are constantly on test—exposed to the weather on the roof of the Lincoln factory. Regularly, for periods up to eighteen months, these samples are inspected and the results recorded by Lincoln experts.

Following are the principal operations in finishing of all Lincoln bodies during which there is a constant inspection:

Sand and clean.
Prime.
Three coats surfacer.
Rub.
Spot prime.
Glaze.
Three coats surfacer.
Rub.
Spot glaze.
Spot sand and clean.
Reprime.
Spray four coats pyroxylin color.
Sand.
Spray four additional coats pyroxylin color.
Inspect.
Interior trim.
Polish body.
Inspect.
Final polish
Inspect
Stripe.
Final inspection.

INSPECTION AND REINSPECTION

BEFORE a car can leave the Lincoln plant it must prove beyond question that it measures up to Lincoln standards of appearance, comfort, power, acceleration smoothness, quietness, and ease of handling.

One of the most interesting and most conclusive inspections given the Lincoln body and chassis is known as the "agitator test." In this test, the wheels of the cars are stationed on four revolving rollers, placed off-center and so devised as to secure the uneven riding effect of an extremely rough road. The car, completely assembled, is run under its own power at all speeds up to forty-five miles an hour—at which speed it is held while a thorough test is made. The severe weaving and bumping are a most rigorous test for springs and chassis as well as for body. This is probably a more rigorous test than the car will ever get on the road, and is certain to bring out any imperfection that might otherwise develop after many thousands of miles of roadwork.

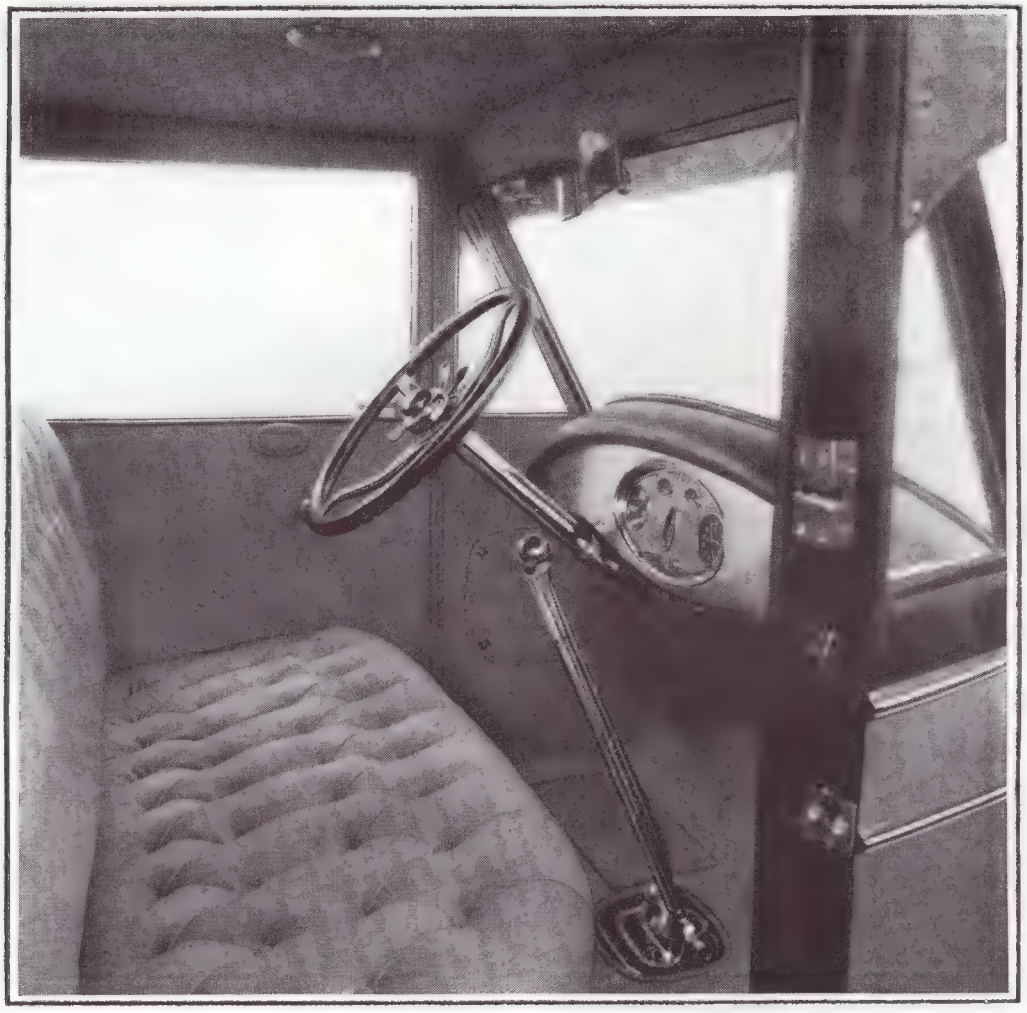
"Agitator test" detects every squeak or looseness.

Even this test is not taken as conclusive proof of excellence by the critical organization that builds the Lincoln. Following the "agitator test," every car must actually run through its paces on the road—again under the alert observation of trained inspectors. No restrictions as to necessary time or mileage are placed upon these tests; the inspectors are simply given instructions to find any irregularity, however minute.

When the Lincoln is finally ready for loading it is taken into a separate building, where it is thoroughly washed. There are 25 men in the loading line, performing the cleaning-up operations and giving every conceivable final inspection.

Every freight car consigned for Lincoln shipment is washed thoroughly before it is loaded, and is sealed with heavy paper to protect it from dust and dirt.

Loading line, where 25 men make final inspections on every completed car.



Driving compartment of 4-passenger 3-window Berline.

DRIVING THE LINCOLN

LINCOLN owners are the most enthusiastic drivers, for it is as much pleasure to sit at the wheel of the Lincoln as to ride in relaxation as a passenger.

The ease with which the car can be driven and maneuvered is a revelation. Steering requires practically no effort; the high turning ratio and the adjustable bearings located in the steering mechanism practically eliminate all turning strain. Special reaction springs absorb the most violent road shocks, making the Lincoln both easy and safe to drive on rough highways.

The steering wheel is set at the most restful angle. There is ample leg room under the cowl, and convenient space between the gear shift lever and the seat—though the lever is within easy reach in any gear. The seats are tilted at the proper angle for complete relaxation.

The Lincoln owner is not concerned about the usual "25 mile per hour" breaking-in period. A new Lincoln may safely be driven at ordinary touring speed from the very first mile. When delivered to the purchaser, every part of the Lincoln engine runs freely; there is ample clearance for perfect lubrication and for the expansion that occurs at operating temperatures.

Thus the Lincoln owner not only is saved the inconvenience of restricted performance during the first few weeks of driving, but has no cause to worry about costly mechanical mishaps—such as sometimes occur to a new car less carefully constructed than a Lincoln.

The great potential power of the Lincoln is scarcely ever used to the limit, but it is satisfying for the Lincoln owner to know that in those rare emergencies when exceptional performance becomes imperative the Lincoln will respond generously—without strain or exertion.

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THE Lincoln car has been accorded almost universal acceptance and appreciation; its beauty and performance have merited enthusiastic praise everywhere. Yet this achievement could never have been realized without, first, the Lincoln ideal to offer

"as nearly perfect a motor car as it is possible to produce"

and, second, the unlimited resources and facilities of the Ford Motor Company which made that ideal attainable.

Some Interesting Features *of the* Lincoln Car

The eight cylinders of the Lincoln V-type engine are set at an angle of 60°. This permits "unrhythmic firing," which reduces "periodic vibration." It also permits a more compact engine design which gives more convenient room for engine fittings and makes adjustments much more accessible.

A Lincoln car is driven through a tapered steel torque tube which applies propelling power well forward on the chassis—this means smoother starting and much smoother travel, especially over rough roads and through mud and sand. But still more important—it relieves the springs of all driving strain and torque. The springs are free to perform their real function—to carry the load of the car. They are shackled at both ends to permit the softest possible play.

Sixty-five hundred mechanical operations in the Lincoln car are accurate to 1/10000th of an inch. Many measurements are not permitted to deviate more than 1/10-0000th of an inch. To obtain the utmost in precision gages for checking manufacturing processes and checking the precision of machines which perform these processes, the builders of the Lincoln engaged the services of C. E. Johansson, a master of precision gages, who is now a member of the Ford organization.

A Lincoln motor is so carefully made and so perfectly fitted that a touch of the finger can turn a Lincoln crankshaft after the engine bearings are finally set up. That is one reason why a new Lincoln car requires no "breaking in"—why you can put it into regular use from the very first mile.

Even little things are designed and made with the same great care. Lincoln spring bolts, for instance, are accurate to 1/10000th of an inch. They are not only drilled for lubrication supply, but are sealed with a spring-tight bevel cap which permits lubricant to flow out to the bearing surface continually, but prevents grit and road water from working in.

Lincoln bodies are relatively as carefully made as the Lincoln chassis—doors and windows are framed in cast aluminum; they fit perfectly and open and close with precision. They are made of the finest materials procurable—the panels are of aluminum and the interiors are trimmed with the finest fittings and fabrics known to the industry.

Lincoln cars are individually finished and the utmost artistry is employed to select exactly the right colors and shades—oftentimes rare combinations are inspired by a study of Nature's own most beautiful colorings. Yet every Lincoln car is distinctively dignified and always in exquisite taste to satisfy the exacting market in which Lincoln cars are sold.

SPECIFICATIONS

POWER PLANT

UNIT POWER PLANT—Three-point suspension. Engine, clutch and transmission form a single compact unit. All working parts inclosed.

ENGINE—V-Type—Eight cylinders cast in blocks of four and arranged at an angle of 60 degrees, with valves operated directly by roller type valve lifters from one camshaft; bore 3½", stroke 5'.

CLUTCH—Multiple disc dry plate clutch completely inclosed. Clutch pedal is adjustable to take care of wear.

TRANSMISSION—Selective sliding gear type with three speeds forward and reverse; shafts mounted in ball and roller bearings.

CONTROL—Levers in center of car, mounted on transmission cover. Gear control lever is of the ball and socket type.

FUEL SYSTEM

SUPPLY—Twenty-gallon fuel tank at rear of car, including an automatic reserve; fuel supply to carburetor by gravity from vacuum tank on dash.

CARBURETOR—Especially developed for flexible action and low-grade gasoline.

COOLING SYSTEM

WATER CIRCULATION—One centrifugal water pump forces water equally to both cylinder blocks.

RADIATOR—Tubular type, provided with automatically operated shutters.

THERMOSTATIC CONTROL OF SHUTTERS—Thermostat located in upper radiator tank controls opening and closing of shutters to insure the correct temperatures for efficient engine operations.

CONDENSER—Connected with radiator overflow pipe. Eliminates loss of cooling liquid by evaporation.

LUBRICATION

ENGINE LUBRICATION—Gear type oil pump forces oil directly to all engine bearings with pressure automatically controlled at all engine speeds.

CHASSIS LUBRICATION—By means of pressure gun, easily attached at accessible places.

ELECTRICAL SYSTEM

IGNITION—Current is derived from storage battery kept constantly charged by the starter-generator. Distributor contains automatic spark advance.

CHASSIS DETAILS

STEERING—Worm and sector type; semi-reversible with steering knuckles mounted in roller bearings.

REAR AXLE—Full floating type, driving through spiral bevel gears.

TORQUE TUBE—Incloses the tubular propeller shaft and takes all driving thrust, thus relieving the springs from any function except suspension.

FRONT AXLE—Drop-forged "I" beam section with adjustable tie rod located back of axle.

FRAME—Seven and one-half inches deep. Holes for all frame members are drilled, not punched. Frame narrows toward front, giving a short turning radius.

SPRINGS—Semielliptic. Rear springs are five feet long, underslung and are carried on oscillating spring seats.

WHEEL BASE—136 inches.

TIRE CARRIER—Spare tire carrier for one or two rims with lock at rear of chassis or carried on side.

TIRES—Balloon tires, 32x6.75, are standard equipment.

INSTRUMENT PANEL—Contains, in neat oval, speedometer, gas gage, ammeter, oil gage, 8-day clock, carburetor choke, cigar lighter and inspection lamp socket. The ignition and steering lock are on the steering post.

BRAKES—Four internal expanding service brakes. Two external contracting emergency brakes operating on rear wheel drums.

STANDARD EQUIPMENT—See equipment specifications on price sheet.

The Market Place

All ads submitted for inclusion in " The Market Place" must be related to those Lincolns that fall within the framework of the LOC.

FOR SALE

1931 K Cowl lights complete, excellent.
K V-12 pair of metal side mount covers, complete, excellent.
17" wire wheels, rust free; '34 front bumper, complete.
KB 18" wire wheels, pair, rust free, perfect.
1923 L Owner's manual.
Contact: Charles Jones, 121 Midway Dr. Woodland, Calif. 95695
(916) 666-2250

1932 KB LeBaron Con. Roadster. Originally sold in Beverly Hills to Madeline Mayer at 8195 Hollywood Blvd. She ordered the car with special paint and upholstery (Mikado Maroon). All original condition, complete and running; odometer reads 37,310 miles. In storage from 1956 to 1978. Best offer. (408) 779-7822. Calif

1923 L Disc wheel hubs.
Contact: Jack Bryant, 2742 Bordeaux, La Jolla, Cal. 92037
(714) 453-0197

1929 L Locke 7 pass. touring, original & complete with rebuilt engine. Needs some wood repair, runs great. $27,500.00 or best offer.
1929 L Chassis complete, except body. Has original chrome disc wheels. $2,500.00 firm. Will throw in cowl with dash and instruments.
Contact: Mark Gamble, 7100 Dalmatia Dr. Riverdale, Georgia. 30274. (404) 997-7333, 997-0032.

1929 L Locke 7 pass. Touring. Ground up restoration from mint Wyoming car. Finest possible quality. Best of Show at LOC Meet in Wisconsin; National AACA 1st, 1979; Best Owner Restored VMCCA 1978; plus many more. First in Class, 1979 Grand Classic and is now a CCCA Senior. Excellent road car for show or go. Will accept bids in the $50,000.00 range.
Contact: T.A. Onega, 2145 S. Lapeer Rd. Lapeer, Mi. 48446
(313) 664-4820

WANTED

1923 L Hood and wood wheel tire carrier
Contact: Jack Bryant, 2742 Bordeaux, La Jolla, Cal. 92037 (714) 453-0197

1930 L Roadster: luggage rack, wind wings, (or info on) battery hold down clamps, running board mouldings, and gas gauge.
Contact: Gene Nau, 32481 Meadowlark Way, Pepper Pike, Oh. 44124. (216) 464-3232.

1927 L Rims, one or two, for 700 x x21 tire. Hub caps to trade, '24-'27, gas gauge, and door handles
Contact: Jack Durrell, Riske Creek, B.C. Canada, VOL1TO

1928-31 Touring, good original or older restoration to seat my family of five.
Contact: Stan Lempa, 4901 N. Crescent Ave. Norridge, Ill. 60656 (312) 456-0334

1937 K 7 pass. sedan: voltage regulator, wiring diagram or harness, main & rod bearings, headlites, and right rear tailite.
Contact: Floyd E. Lambert, 485 University Pl. Corpus Christi, Texas, 78412.

1930 L Roadster: luggage rack.
Contact: Harold Stanford, 510 Knollwood Dr. Bremen, Georgia. 30110

1932-34 1935 1-7.00 X 18 8 lug wire wheel, 6- hub caps, 2-side mount covers. Tailite lens, 2-bumper guards, 1-mascot. State price & condition
Contact: Charles Vendl, 1935 Morello Ave. Pleasant Hill, Cal. 94523.

1933 KA Luggage rack bracket that bolts on to the center of the rear bumper to hold rack. Also need two bumper bolts in casting to hold on bumpers going to brackets. Windshield frame in good condition. Color charts. Six new 7.00 X 18 WSW tires. One side mount cover. Rear bumper in good condition to be replated.
Contact: Gordon Knott, 8525 NE Duddleson St., Portland, Oregon, 97220. (502) 254-3632.

1932 KB Landaulette; ignition coil cover, hinge mechanism for jump seats. If none available, would appreciate loan of originals for duplication, will pay expenses. Also need horn.
Contact: Charles Morrells, 924 N. Colonial Ave., York, Penn. 17403. (717) 854-4336 days, 846-7633 evenings.

!!!!!!! MR. HENRY HUNT WILL BE WRITING A HISTORY OF THE EARLY DAYS
!!!!!!! OF THE LINCOLN OWNERS' CLUB. ANY AND ALL MEMBERS HAVING IN-
!!!!!!! FORMATION PLEASE WRITE MR. HUNT AT 13 Town's End Rd. Mendham, N.J. 07945

LINCOLN

OWNERS' CLUB

1980

NATIONAL MEET

TO BE HELD IN

SAN MATEO, CALIFORNIA

(San Francisco)

AUGUST 21, 22 and 23

with tour to

The Pebble Beach Concours AUGUST 24

REGISTRATION PACKET MAILED TO ALL MEMBERS

REGISTRATION DEADLINE

— JULY 19, 1980 —

RICK ZOBELEIN, 2510 ALAMEDA, SAN MATEO, CALIFORNIA 94403

(415) 573-1876